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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,226	03/22/2004	John Pavlic	FSP0241	9137

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EXAMINER	
STRONCZER, RYAN S	
ART UNIT	PAPER NUMBER
2425	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/805,226	PAVLIC ET AL.	
	Examiner	Art Unit	
	Ryan Stronczer	2425	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 December 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15 and 17-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15,17-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 16 January 2009 was filed after the mailing date of the non-final rejection on 03 September 2008. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Allowable Subject Matter

The indicated allowability of claims 16 and 17 is withdrawn in view of the newly discovered reference(s) to Dan et al. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 6-8, 22, 23, 26-29, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dan et al. (US Pat. No.: 7,039,942) and further in view of Tresness et al. (US Pat. No.: 5,999,796) and Lee et al. (US pat. No.: 5,485,630).

As to claims 1 and 22, Fig. 5 of Dan teaches a device in accordance with the recited apparatus. Forward amplifier **204** (Fig. 4) is equivalent to the recited active

component. Though Dan does not explicitly disclose the recited "signal tap output," Dan teaches that the output of the forward amplifier is the transmitted into the cable network (col. 11/lines 1-7). In an analogous art, Fig. 3A-B of Tresness teaches a distribution system in which the output of a forward amplifier is transmitted to a plurality of tap devices, both active and passive. It would have been obvious to one of ordinary skill in the art at the time of the invention that the forward and reverse amplifiers taught by fig. 4 of Dan could be incorporated into the distribution system taught by Fig. 3A-B of Tresness as a combination of known elements in the art at that would have yielded predictable results. Fig. 4 of Dan further teaches the amended limitations of a first and second diplex port each containing a low-pass filter (**202, 206**), said low-pass filters being connected by a feedback circuit (Return Signals and return amplifier apparatus **208**).

Though Dan does not explicitly teach the recited input level of -4 dBmV, Lee teaches in an analogous art that such levels are common in a cable distribution network and thus it would have been obvious to one of ordinary skill in the art at the time of the invention to select a component with a -4 dBmV input. As to the recited limitation that said active component is "configured to provide an RF output of approximately 18 dBmV with a maximum DC power consumption of no more than 0.5 Watts," Applicant is advised that the limitation comprises functional language and does not serve to further limit the claimed apparatus (see *MPEP § 2114 [R-1]*).

As to claim 22, the rejection of claim 1 is incorporated herein. As to the recited signal distribution system, Fig. 3A-B of Tresness teach a distribution system comprising both active and passive taps.

As to claims 2 and 23, Lee teaches *"The noise figure FB of each branch a-d of the Input Section 30 for the signals (5 MHz-150 MHz) is less than 4.4 dB…The amplifier 36 has a noise figure of 3.6 dB…"* (col. 8/line 64—col. 9/line24). Though Lee does not explicitly teach the recited " noise figure of no more than 3 dB," it has been held that where the general conditions of a claim are disclosed in the prior art, except for an optimum value, it would have been obvious to one having ordinary skill in the art at the time of the invention to reach such an optimum value, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art (***In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)**).

As to claims 4 and 25, Lee teaches that the output signal from the amplifier *"is about +23 dBmV"* (col. 9/lines 30-33). Though Lee does not explicitly teach the recited +18 dBmV, the recited value is substantially close enough to the "about +23 dBmV" taught by Lee that it would have been obvious to one of ordinary skill in the art to reach such an optimum value through routine experimentation, as analyzed above w/r/t claims 2 and 23.

As to claim 6 and 27, Examiner takes Official Notice that "active component" is a term commonly used in the art to refer to non-passive circuit elements (e.g., elements other than resistors, inductors, and capacitors) such as transistors that can produce more power in the output signal than is present in the input signal. Examiner further

notes that silicon or GsAs-type transistors are notoriously well-known and widely-used in the art to amplify a signal and as such would have been obvious to one of ordinary skill in the art at the time of the invention to employ.

As to claims 7 and 28, Examiner takes Official Notice that a MMIC is an extremely well-known and widely-used technique for circuit design and construction, particularly in microwave or RF applications, and would have been obvious to one of ordinary skill in the art at the time of the invention to employ.

As to claims 8 and 29, the rejection of claims 7 and 28 is incorporated herein. Examiner further notes that silicon- or GsAs-based transistors are notoriously well-known and widely-used in the art in constructing a MMIC device and would have been obvious to one of ordinary skill in the art at the time of the invention to employ.

As to claim 33, the recited signal source input is taught by Fig. 4 of Dan (element **200A**).

Claims 3, 5, 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dan in view of Lee and Tresness as applied to claim 1 above, and further in view of Wyatt et al. (Pub. No.: US 2004/0213532).

With respect to claims 3 and 24 which recite a bandwidth of 20 MHz – 1.5 GHz, Wyatt teaches that it is common in the art for a hybrid fiber-coaxial (HFC) network to use a coaxial cable with a bandwidth of preferably at least 1.5 GHz [0016]. Though the exemplary embodiment taught by Fig. 4 of Dan discloses using an active component with a 50-860MHz bandwidth, it would have been obvious to one of ordinary skill in the

art at the time of the invention that advances in technology would have prompted one of ordinary skill in the art to select a component capable of operating over the entire bandwidth of the distribution medium to both ensure that the signal produced by the recited device is compatible with the distribution medium and to avoid incorporating extra circuit components which would both increase the cost of the device as well as introduce additional signal loss into the circuit.

As to claims 5 and 26, though the device taught by Dan in view of Lee does not explicitly teach the recited input and output impedance of 75 Ω, Wyatt teaches that it is common in the art for a hybrid fiber-coaxial (HFC) network to use a coaxial cable with a 75 Ω impedance [0016] and thus it would have been obvious to one of ordinary skill in the art at the time of the invention to select a component with an input and output impedance matched to that of the distribution medium to both ensure that the signal produced by the recited device is compatible with the distribution medium and to avoid incorporating extra circuit components which would both increase the cost of the device as well as introduce additional signal loss into the circuit.

Claims 9, 10, 15, 21, 30, 31, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dan in view of Lee and Tresness as applied to claim 1 above, and further in view of Strull et al. (US Pat. No.: 7,138,886) and Kamiya (US Pat. No.: 6,785,908).

With respect to claims 9 and 30, Fig. 4 Dan teaches the recited first and second diplex ports connected through an amplifier but does not explicitly teach the recited AC

power chokes or directional couplers. In an analogous art, Fig. 5 of Strull teaches the recited "first AC power passing choke **(212)**; a second AC power passing choke connected to the first AC power passing choke **(214)**; an AC output tap between the first and second AC power passing chokes…a circuit in parallel to the two AC power passing chokes, said circuit comprising a first capacitor connected to a directional coupler connected to second capacitor **(101, 222, 101)**. As it is common in the art for an AC power signal to be transmitted through the same coaxial cable as the data signal in an HFC network (see, e.g., col. 9 of Strull), it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the AC choke and splitter taught by Strull before the first diplex filter taught by Dan to ensure that the forward signals amplified by Dan were only the data signals transmitted through the coaxial cable and not the AC power signal, amplifying which could damage the active electronic components taught by Dan. Though Dan does not explicitly teach the recited "first attenuator connecting an output of the first high-pass filter to an input to the amplifier," Examiner takes Official Notice that it is well known in the art to use an attenuator in series with an amplifier to lower the voltage or power input to the amplifier and to improve impedance matching between the filter and the amplifier. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize an attenuator to ensure that the amplifier received an input signal of an appropriate voltage and power level.

As to the recited "amplifier connected to the DC power supply," Examiner takes Official Notice that it is well known in the art for an active element such as a transistor,

operational amplifier, or MMIC device to require a DC power supply to properly bias the active components and allow the circuit to function as intended. As to the recited "AC to DC power supply connected to the AC output tap," Fig. 2 of Kamiya teaches an analogous CATV tap device which passes the AC input though AC-DC converter **70** to produce a DC supply voltage for components **52** and **54**. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the AC-DC converter taught by Kamiya into the device taught by Dan and Strull to provide a DC supply voltage for the amplifier taught by Dan. This would have been desirable as it would have allowed the circuit to draw a supply voltage from the input signal and not require an external power supply.

As to claims 10 and 31, Fig. 5 of Strull teaches the recited "an output of said second diplex port is connected to said at least one active tap output" (**238**). Additionally, Fig. 3A-B of Tresness teaches a distribution system in which the output of a forward amplifier is transmitted to a plurality of tap devices, both active and passive.

As to claim 15, Fig. 5 of Strull teaches the recited "a signal output port connected to an output of said second power passing choke (**228**); and a terminus connected to an output of said second power passing choke *(col. 9/lines 21-23)*."

As to claims 21 and 37, the AC-DC power converter taught by Kamiya provides the equivalent functionality as the recited "AC line power."

Claims 11-14 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dan in view of Strull, Tresness, Lee, and Kamiya as applied to claim 9 above, and further in view of Utsumi et al. (US Pat. No.: 5,539,657).

As to claims 11 and 32, the combination analyzed above w/r/t claim 9 does not explicitly teach the recited first splitter; however, Kamiya teaches an analogous tap device comprising splitter **34**. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the tap taught by Dan in view of Strull and Kamiya with the splitter taught by Kamiya to allow each tap device to service more customers and to decrease the overall number of taps needed in the system. As to the recited second splitter, Fig. 3 of Utsumi teaches a CATV distribution system in which tap devices $\mathbf{4_{17\text{-}21}}$ are connected to signal splitters. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the active tap taught by Strull and Kamiya into the network taught by Utsumi.

As to claim 12, though the first splitter (Fig. 2, **34**) taught by Kamiya has four outputs (as opposed to the recited two), it would have been an obvious matter of design choice that would have been well within the scope of one of ordinary skill in the art to configure the splitter to have more or fewer outputs depending on the specifications of the application. As to the recited "said plurality of second signal splitter output ports comprise two second signal splitter output ports," second splitters $\mathbf{6_{25\text{-}27}}$ taught by Fig. 3 of Utsumi each have two output ports.

As to claims 13 and 14, the rejection of claim 12 is incorporated herein.

Claims 18-20 and 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dan in view of Lee and Tresness as applied to claim 1 above, and further in view of Gresko et al. (US Pat. No.: 7,086,078).

As to claims 18 and 34, the recited housing is taught by Fig. 4-9 of Gresko. Though Dan in view of Tresness and Lee does not explicitly teach the recited housing, it would have been obvious to one of ordinary skill in the art at the time of the invention to embody the device in a housing such as that taught by Gresko to protect the device from weather damage.

As to claims 19 and 35, Gresko teaches *"A metal braid and flexible gasket surround the periphery of the tap cover* ***27*** *to provide a seal for weather and EMI /RFI ingress"* (col. 1/lines 59-61).

As to claims 20 and 36, Fig. 3 of Gresko teaches the recited strand mounting.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Stronczer whose telephone number is (571) 270-3756. The examiner can normally be reached on 7:30 AM - 5:00 PM (EDT), Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian T. Pendleton can be reached on (571) 272-7527. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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